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<110> Walke, D. Wade
Scoville, John

<120> Novel Human Semaphorin Proteins and Polynucleotides Encoding the Same

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			85					90						95	
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		100						105					110		
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Gly Lys Asp Pro Gln Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu		
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Pro Leu Ser Gly Ser His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser		
195	200	205
Pro Met Cys Thr Tyr Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp		
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Asp Pro Asn Phe Lys Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr		
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Thr Gly Thr Val Ser Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg		
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Ser Gln Ser Leu Arg Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu		
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Gln Asp Pro Ala Phe Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly		
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Ser Leu Gln Gly Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr		
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Leu	Val	Gly	Thr	Gln	Gln	Leu	Gly	Glu	Phe	Gln	Cys	Trp	Ser	Leu	Glu								
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Glu	Gly																						

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Figure 1 consists of 12 sub-graphs, labeled (a) through (l), each showing the log₁₀ CFU/g of *E. coli* O157:H7 over a 24-hour period under different chemical treatments. The y-axis for all graphs ranges from 0 to 7.5 log₁₀ CFU/g. The x-axis represents time in hours from 0 to 24. Graph (a) shows 0.1% NaOCl treatment, with a gradual decrease from ~7.2 to ~6.5 log₁₀ CFU/g. Graph (b) shows 0.2% NaOCl, with a decrease to ~6.0 log₁₀ CFU/g. Graph (c) shows 0.5% NaOCl, with a decrease to ~5.5 log₁₀ CFU/g. Graph (d) shows 1.0% NaOCl, with a decrease to ~5.0 log₁₀ CFU/g. Graphs (e) through (l) show treatments with increasing concentrations of NaOCl (0.1% to 1.0%) and the addition of 0.1% NaOH and 0.1% Na₂S₂O₅. These treatments show a more rapid and complete inactivation, with the 1.0% NaOCl + 0.1% NaOH + 0.1% Na₂S₂O₅ treatment (l) reaching ~4.5 log₁₀ CFU/g by 24 hours.

Met	Pro	Ser	Gln	Gly	Arg	Val	Glu	Ser	Cys	Ser	Cys	Arg	Ser	Gly	Gly
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Gly	Gly	Pro	Arg	Gly	Asp	Ser	Gly	Ala	Asp	Arg	Gly	Ala	Glu	Leu	Pro
			20					25					30		
Pro	Val	Ser	Pro	Ala	Glu	Pro	Pro	Glu	Pro	Glu	Pro	Arg	Asp	Thr	Val
		35				40						45			
Ala	Pro	Ala	Leu	Arg	Met	Leu	Arg	Thr	Ala	Met	Gly	Leu	Arg	Ser	Trp
	50					55					60				
Leu	Ala	Ala	Pro	Trp	Gly	Ala	Leu	Pro	Pro	Arg	Pro	Pro	Leu	Leu	Leu
65					70					75					80
Leu	Leu	Leu	Leu	Leu	Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala
				85					90					95	
Leu	Ser	Pro	Arg	Ile	Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe
			100					105					110		
Leu	Arg	Phe	Glu	Ala	Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu
		115					120					125			
Ser	Arg	Asp	Gly	Arg	Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe
	130					135					140				
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Gly	Lys	Asp	Pro	Gln	Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu
			180					185					190		
Pro	Leu	Ser	Gly	Ser	His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser
		195					200					205			
Pro	Met	Cys	Thr	Tyr	Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp
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Asp	Pro	Asn	Phe	Lys	Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr
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Thr	Gly	Thr	Val	Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg	
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Ser	Gln	Ser	Leu	Arg	Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu
		275					280					285			
Gln	Asp	Pro	Ala	Phe	Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly
	290					295					300				
Ser	Leu	Gln	Gly	Asp	Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr
305				310						315					320
Gly	Gln	Glu	Phe	Glu	Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala
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Arg	Ile	Cys	Lys	Gly	Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg
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<212> DNA

<213> homo sapiens

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<213> homo sapiens

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Ala Pro Ala Leu Arg Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp

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His Pro Lys Thr Cys Pro Val Val Leu Pro Pro Glu Thr Arg Pro Leu		1100
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<211> 2673

<212> DNA

<213> homo sapiens

<400> 15

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 <211> 890
 <212> PRT
 <213> homo sapiens

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Arg	Ile	Cys	Lys	Gly	Asp	Glu	Gly	Gly	Glu	Arg	Val	Leu	Gln	Gln	Arg
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Asp Pro Tyr Cys Ala Trp Ser Gly Ser Ser Cys Lys His Val Ser Leu
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Tyr Gln Pro Gln Leu Ala Thr Arg Pro Trp Ile Gln Asp Ile Glu Gly
610 615 620
Ala Ser Ala Lys Asp Leu Cys Ser Ala Ser Ser Val Val Ser Pro Ser
625 630 635 640
Phe Val Pro Thr Gly Glu Lys Pro Cys Glu Gln Val Gln Phe Gln Pro
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Asn Thr Val Asn Thr Leu Ala Cys Pro Leu Leu Ser Asn Leu Ala Thr
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Arg Leu Trp Leu Arg Asn Gly Ala Pro Val Asn Ala Ser Ala Ser Cys
675 680 685
His Val Leu Pro Thr Gly Asp Leu Leu Leu Val Gly Thr Gln Gln Leu
690 695 700
Gly Glu Phe Gln Cys Trp Ser Leu Glu Glu Gly Phe Gln Gln Leu Val
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Ala Ser Tyr Cys Pro Glu Val Val Glu Asp Gly Val Ala Asp Gln Thr
725 730 735
Asp Glu Gly Gly Ser Val Pro Val Ile Ile Ser Thr Ser Arg Val Ser
740 745 750
Ala Pro Ala Gly Gly Lys Ala Ser Trp Gly Ala Asp Arg Ser Tyr Trp
755 760 765
Lys Glu Phe Leu Val Met Cys Thr Leu Phe Val Leu Ala Val Leu Leu
770 775 780
Pro Val Leu Phe Leu Leu Tyr Arg His Arg Asn Ser Met Lys Val Phe
785 790 795 800
Leu Lys Gln Gly Glu Cys Ala Ser Val His Pro Lys Thr Cys Pro Val
805 810 815
Val Leu Pro Pro Glu Thr Arg Pro Leu Asn Gly Leu Gly Pro Pro Ser
820 825 830
Thr Pro Leu Asp His Arg Gly Tyr Gln Ser Leu Ser Asp Ser Pro Pro
835 840 845
Gly Ala Arg Val Phe Thr Glu Ser Glu Lys Arg Pro Leu Ser Ile Gln
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<210> 17

<211> 3558

<212> DNA

<213> homo sapiens

<400> 17

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<212> PRT

<213> homo sapiens

<400> 18

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Ala Pro Ala Leu Arg Met Leu Arg Thr Ala Met Gly Leu Arg Ser Trp
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Leu Leu Leu Leu Leu Leu Leu Leu Gln Pro Pro Pro Pro Thr Trp Ala
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145 150 155 160
Leu Leu Trp Gly Ala Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys
165 170 175
Gly Lys Asp Pro Gln Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu
180 185 190
Pro Leu Ser Gly Ser His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser
195 200 205
Pro Met Cys Thr Tyr Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp
210 215 220
Glu Lys Gly Asn Val Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe
225 230 235 240
Asp Pro Asn Phe Lys Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr
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Thr Gly Thr Val Ser Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg
260 265 270
Ser Gln Ser Leu Arg Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu
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Gln Asp Pro Ala Phe Val Ala Ser Ala Tyr Ile Pro Glu Ser Leu Gly
290 295 300
Ser Leu Gln Gly Asp Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr
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Arg Ile Cys Lys Gly Asp Glu Gly Gly Glu Arg Val Leu Gln Gln Arg
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Pro Gln Asp Trp Arg Asp Thr Leu Phe Tyr Gly Val Phe Thr Ser Gln
385 390 395 400
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Lys Asp Val Gln Arg Val Phe Ser Gly Leu Tyr Lys Glu Val Asn Arg
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 Pro Gly Ala Cys Ile Thr Asn Ser Ala Arg Glu Arg Lys Ile Asn Ser
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 Leu Met Asp Gly Gln Val Arg Ser Arg Met Leu Leu Leu Gln Pro Gln
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 Ala Arg Tyr Gln Arg Val Ala Val His Arg Val Pro Gly Leu His His
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 Thr Tyr Asp Val Leu Phe Leu Gly Thr Gly Asp Gly Arg Leu His Lys
 515 520 525
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 530 535 540
 Phe Ser Ser Gly Gln Pro Val Gln Asn Leu Leu Leu Asp Thr His Arg
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 Gly Leu Leu Tyr Ala Ala Ser His Ser Gly Val Val Gln Val Pro Met
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Gly Val Val Gln Val Pro Met Ala Asn Cys Ser Leu Tyr Arg Ser Cys
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<211> 2145

<212> DNA

<213> homo sapiens

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 <211> 714
 <212> PRT
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			20					25					30		
Leu	Leu	Leu	Gln	Pro	Pro	Pro	Pro	Thr	Trp	Ala	Leu	Ser	Pro	Arg	Ile
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Ser	Leu	Pro	Leu	Gly	Ser	Glu	Glu	Arg	Pro	Phe	Leu	Arg	Phe	Glu	Ala
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Glu	His	Ile	Ser	Asn	Tyr	Thr	Ala	Leu	Leu	Leu	Ser	Arg	Asp	Gly	Arg
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Thr	Leu	Tyr	Val	Gly	Ala	Arg	Glu	Ala	Leu	Phe	Ala	Leu	Ser	Ser	Asn
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Asp	Ala	Glu	Lys	Lys	Gln	Gln	Cys	Ser	Phe	Lys	Gly	Lys	Asp	Pro	Gln
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Arg	Asp	Cys	Gln	Asn	Tyr	Ile	Lys	Ile	Leu	Leu	Pro	Leu	Ser	Gly	Ser
			130				135					140			
His	Leu	Phe	Thr	Cys	Gly	Thr	Ala	Ala	Phe	Ser	Pro	Met	Cys	Thr	Tyr
					150					155					160

Ile	Asn	Met	Glu	Asn	Phe	Thr	Leu	Ala	Arg	Asp	Glu	Lys	Gly	Asn	Val	165	170	175
Leu	Leu	Glu	Asp	Gly	Lys	Gly	Arg	Cys	Pro	Phe	Asp	Pro	Asn	Phe	Lys	180	185	190
Ser	Thr	Ala	Leu	Val	Val	Asp	Gly	Glu	Leu	Tyr	Thr	Gly	Thr	Val	Ser	195	200	205
Ser	Phe	Gln	Gly	Asn	Asp	Pro	Ala	Ile	Ser	Arg	Ser	Gln	Ser	Leu	Arg	210	215	220
Pro	Thr	Lys	Thr	Glu	Ser	Ser	Leu	Asn	Trp	Leu	Gln	Asp	Pro	Ala	Phe	225	230	235
Val	Ala	Ser	Ala	Tyr	Ile	Pro	Glu	Ser	Leu	Gly	Ser	Leu	Gln	Gly	Asp	245	250	255
Asp	Asp	Lys	Ile	Tyr	Phe	Phe	Phe	Ser	Glu	Thr	Gly	Gln	Glu	Phe	Glu	260	265	270
Phe	Phe	Glu	Asn	Thr	Ile	Val	Ser	Arg	Ile	Ala	Arg	Ile	Cys	Lys	Gly	275	280	285
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Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp	Gly	Phe	Pro	Phe	Asn	305	310	315
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Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	Ala	Asn	Cys	Ser	Leu	515	520	525
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Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	Tyr	Gln	Pro	Gln	Leu	545	550	555
Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	Ala	Ser	Ala	Lys	Asp	565	570	575
Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	Phe	Val	Pro	Thr	Gly	580	585	590
Glu	Lys	Pro	Cys	Glu	Gln	Val	Gln	Phe	Gln	Pro	Asn	Thr	Val	Asn	Thr	595	600	605

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 645 650 655
 Trp Ser Leu Glu Glu Gly Phe Gln Gln Leu Val Ala Ser Tyr Cys Pro
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 Glu Val Val Glu Asp Gly Val Ala Asp Gln Thr Asp Glu Gly Gly Ser
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<210> 22

<211> 994

<212> PRT

<213> homo sapiens

<400> 22

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20          25          30
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35          40          45
Ser Leu Pro Leu Gly Ser Glu Glu Arg Pro Phe Leu Arg Phe Glu Ala
50          55          60
Glu His Ile Ser Asn Tyr Thr Ala Leu Leu Leu Ser Arg Asp Gly Arg
65          70          75          80
Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe Ala Leu Ser Ser Asn
85          90          95
Leu Ser Phe Leu Pro Gly Gly Glu Tyr Gln Glu Leu Leu Trp Gly Ala
100         105         110
Asp Ala Glu Lys Lys Gln Gln Cys Ser Phe Lys Gly Lys Asp Pro Gln
115         120         125
Arg Asp Cys Gln Asn Tyr Ile Lys Ile Leu Leu Pro Leu Ser Gly Ser
130         135         140
His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser Pro Met Cys Thr Tyr
145         150         155         160
Ile Asn Met Glu Asn Phe Thr Leu Ala Arg Asp Glu Lys Gly Asn Val
165         170         175
Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe Asp Pro Asn Phe Lys
180         185         190
Ser Thr Ala Leu Val Val Asp Gly Glu Leu Tyr Thr Gly Thr Val Ser
195         200         205
Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg Ser Gln Ser Leu Arg
210         215         220
Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu Gln Asp Pro Ala Phe
225         230         235         240
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245         250         255
Asp Asp Lys Ile Tyr Phe Phe Phe Ser Glu Thr Gly Gln Glu Phe Glu
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	290					295					300				
Lys	Ala	Gln	Leu	Leu	Cys	Ser	Arg	Pro	Asp	Asp	Gly	Phe	Pro	Phe	Asn
305					310					315					320
Val	Leu	Gln	Asp	Val	Phe	Thr	Leu	Ser	Pro	Ser	Pro	Gln	Asp	Trp	Arg
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Asp	Thr	Leu	Phe	Tyr	Gly	Val	Phe	Thr	Ser	Gln	Trp	His	Arg	Gly	Thr
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Thr	Glu	Gly	Ser	Ala	Val	Cys	Val	Phe	Thr	Met	Lys	Asp	Val	Gln	Arg
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Val	Phe	Ser	Gly	Leu	Tyr	Lys	Glu	Val	Asn	Arg	Glu	Thr	Gln	Gln	Trp
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Tyr	Thr	Val	Thr	His	Pro	Val	Pro	Thr	Pro	Arg	Pro	Gly	Ala	Cys	Ile
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Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	Asn	Ser	Ser	Leu	Gln	Leu	Pro
				405					410					415	
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Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	Pro	Gln	Ala	Arg	Tyr	Gln	Arg
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Val	Ala	Val	His	Arg	Val	Pro	Gly	Leu	His	His	Thr	Tyr	Asp	Val	Leu
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Pro	Arg	Val	His	Ile	Glu	Glu	Leu	Gln	Ile	Phe	Ser	Ser	Gly	Gln	
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Pro	Val	Gln	Asn	Leu	Leu	Leu	Asp	Thr	His	Arg	Gly	Leu	Leu	Tyr	Ala
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Ala	Ser	His	Ser	Gly	Val	Val	Gln	Val	Pro	Met	Ala	Asn	Cys	Ser	Leu
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Tyr	Arg	Ser	Cys	Gly	Asp	Cys	Leu	Leu	Ala	Arg	Asp	Pro	Tyr	Cys	Ala
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Trp	Ser	Gly	Ser	Ser	Cys	Lys	His	Val	Ser	Leu	Tyr	Gln	Pro	Gln	Leu
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Ala	Thr	Arg	Pro	Trp	Ile	Gln	Asp	Ile	Glu	Gly	Ala	Ser	Ala	Lys	Asp
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Leu	Cys	Ser	Ala	Ser	Ser	Val	Val	Ser	Pro	Ser	Phe	Val	Pro	Thr	Gly
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	610					615					620				
Asn	Gly	Ala	Pro												

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Pro Gln Ala Arg Tyr Gln Arg Val Ala Val His Arg Val Pro Gly Leu
740 745 750
His His Thr Tyr Asp Val Leu Phe Leu Gly Thr Gly Asp Gly Arg Leu
755 760 765
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770 775 780
Gln Ile Phe Ser Ser Gly Gln Pro Val Gln Asn Leu Leu Leu Asp Thr
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His Arg Gly Leu Leu Tyr Ala Ala Ser His Ser Gly Val Val Gln Val
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<212> DNA

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<400> 23

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<211> 1009

<212> PRT

<213> homo sapiens

<400> 24

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			20					25					30		
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Lys Ala Ser Trp Gly Ala Asp Arg Ser Tyr Trp Lys Glu Phe Leu Val					
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Leu Tyr Arg His Arg Asn Ser Met Lys Val Phe Leu Lys Gln Gly Glu					
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<212> PRT

<213> homo sapiens

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Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu Phe Ala Leu Ser Ser Asn
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His Leu Phe Thr Cys Gly Thr Ala Ala Phe Ser Pro Met Cys Thr Tyr
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Leu Leu Glu Asp Gly Lys Gly Arg Cys Pro Phe Asp Pro Asn Phe Lys
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195     200     205
Ser Phe Gln Gly Asn Asp Pro Ala Ile Ser Arg Ser Gln Ser Leu Arg
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Pro Thr Lys Thr Glu Ser Ser Leu Asn Trp Leu Gln Asp Pro Ala Phe
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Phe Phe Glu Asn Thr Ile Val Ser Arg Ile Ala Arg Ile Cys Lys Gly
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Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	His	Phe	Leu	Met	Asp	Gly	Gln	420	425	430
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Trp	Ser	Leu	Glu	Glu	Gly	Phe	Gln	Gln	Leu	Val	Ala	Ser	Tyr	Cys	Pro	660	665	670
Glu	Val	Val	Glu	Asp	Gly	Val	Ala	Asp	Gln	Thr	Asp	Thr	Val	Pro	Thr	675	680	685
Pro	Arg	Pro	Gly	Ala	Cys	Ile	Thr	Asn	Ser	Ala	Arg	Glu	Arg	Lys	Ile	690	695	700
Asn	Ser	Ser	Leu	Gln	Leu	Pro	Asp	Arg	Val	Leu	Asn	Phe	Leu	Lys	Asp	705	710	715
His	Phe	Leu	Met	Asp	Gly	Gln	Val	Arg	Ser	Arg	Met	Leu	Leu	Leu	Gln	725	730	735

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57

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